Plans and Ideas for Version 6 Trace Gas Retrievals

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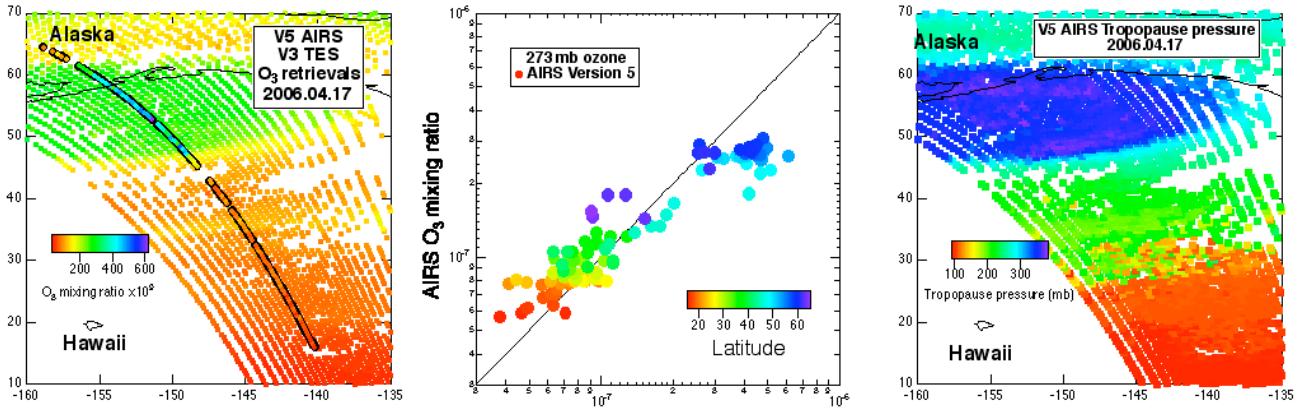
Issues

- Funding
  - Little AIRS trace gas studies/algorithm development funded under ROSES 06
- Priorities
  - What are the most needed improvements achievable within funding constraints?
- Personnel
  - Who will be implement and test improvements?

Ozone



- Modification of first guess to account for tropopause pressure variation – Irion, Barnet, Divakarla, Wei et al.
  - Modify (on the fly) current climatology?
  - New tropopause height-dependent climatology?
  - Not trivial as first guess slab columns must be calculated/modified for each retrieval after temperature retrieval.

Ozone (continued)

- Increase in number of trapezoids near tropopause?
  - Trapezoid spacing is fixed regardless of tropopause pressure or latitude.
- Damping parameter variation as function of latitude?
  - Decrease damping where DOF is higher?
- RTA improvements – Strow and Hannon

Carbon Monoxide

- McMillan, Barnet et al.
- Change trapezoid weights at top and bottom from 0.5 to 1.0
- Latitudinally varying controls
  - First guess
    - Climatology? Tropopause-height variance?
  - Damping
- Improved error estimates
- Other retrieval algorithm?

Methane

- Barnet, Xiong et al.
- Modifications:
  - Channel re-selection
  - Trapezoid re-selection
  - Tuning
  - Damping
  - First guess
  - RTA modifications? – Hannon and Strow

Dust

- Strow, DeSouza-Machado, Hannon et al.
- Improved dust flag
- Integration of scattering RTA into PGE?
  - work with Barnet
  - Standard system (w/cloud-cleared radiances)
  - Redo on single footprints w/dust flag

SO_2

- Matt Watson and Fred Prada's SO_2 code?
  - Assist by Chris Barnet
- Continue to support SO_2 flag

HNO_3

- Barnet, Sun, Hannon, Strow et al.
  - Channels, trapezoids, damping, first guess + avg. kernel

N_2O

- Barnet, Sun, Strow, Hannon et al.
  - Channels, trapezoids, damping, first guess
- Possibly in support product

Discussion